

CLAIMS

What is claimed is:

1. A system to reduce a data error rate associated with a signal received by a
5 wireless communication device comprising:
 - a first antenna configured to receive a signal;
 - a second antenna configured to receive the signal, the second antenna configured at least partially orthogonal to the first antenna;
 - a processor configured to determine an error rate associated the signal and generate one
10 or more control signals; and
 - a switching element, responsive to the one or more control signals, configured to selectively provide either the signal received via the first antenna or the signal received vial the second antenna to the processor.
- 15 2. The system of Claim 1, wherein the switching element comprises a voltage controlled switch.
3. The system of Claim 1, wherein the switching element comprises a first amplifier and a second amplifier, wherein operation of the first amplifier and a second amplifier is
20 controlled by the one or more control signals.

4. The system of Claim 1, further including a first amplifier located between the first antenna and the switching element and a second amplifier located between the second antenna and the switching element.
- 5 5. The system of Claim 1, wherein the one or more control signals is generated in response to the error rate exceeding a threshold.
6. A method of switching between a signal received over a first antenna or a second antenna by switching between the first antenna and the second antenna comprising:
- 10 receiving a signal with a first antenna;
determining an error rate of the signal;
comparing the error rate of the signal to a threshold;
generating a control signal, responsive to the comparing, wherein the control signal determines whether the signal provided to a receiver is received over the first antenna or the
- 15 second antenna; and
providing the signal received over first antenna or the second antenna to the receiver based on the control signal.
7. The method of Claim 6, wherein comparing the error rate of the signal to a
- 20 threshold comprises comparing an average error rate of the signal over a period of time to a threshold.

8. The method of Claim 6, wherein the error rate comprises an error rate selected from the group consisting of bit error rate, symbol error rate, and signal to noise ratio.
9. The method of Claim 6, further comprising providing the control signal to one or
5 more amplifiers, wherein the control signal controls a level of amplification of the signal received over the first antenna and the second antenna.
10. The method of Claim 9, further comprising:
slowly decreasing the amplification of a first amplifier coupled to the first antenna;
10 while simultaneously,
slowly increasing the amplification of a second amplifier coupled to the second antenna.
11. The method of Claim 10, wherein the steps of decreasing and increasing are
15 performed over a period of time greater than or equal to two milliseconds.
12. The method of Claim 6, wherein the method occurs within a wireless communication device.
- 20 13. A method of receiving a signal comprising:
receiving a signal with a first antenna;
receiving the signal with a second antenna;

responsive to one or more control signals from a processor, amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal;

directing the amplified signal to a processor;

5 analyzing the amplified signal with the processor to determine an error rate associated with the amplified signal;

comparing the error rate to a threshold value; and

generating one or more control signals to control the amplifying if the comparing reveals that the error rate is greater than the threshold value.

10

14. The method of Claim 13, wherein the comparing the error rate of the amplified signal to a threshold value comprises comparing an average error rate of the amplified signal to a threshold value.

15 15. The method of Claim 13, wherein the threshold value comprises a maximum error rate value, such that error rates greater than the threshold value result in the processor generating a control signal to amplify the signal received from an alternate antenna.

16. The method of Claim 13, further comprising providing the control signal to a switch,
20 wherein the switch is configured to direct either the signal from the first antenna or the second antenna the processor.

17. The method of Claim 13, wherein first antenna is at least partially orthogonal to the second antenna.
18. An apparatus for switching between a first input and a second input within a wireless communication device configured to received a signal comprising:
- 5 a first conductive path having a first amplifier and first output;
- a second conductive path having a second amplifier and second output, wherein the first output and the second output are connected to a node; and
- a processor configured to receive a signal from the node and present control signals to the
- 10 first amplifier and the second amplifier, wherein said control signals selectively enable or disable the first amplifier and the second amplifier.
19. The apparatus of Claim 18, wherein the node comprises a resistive network.
- 15 20. The apparatus of Claim 18, wherein the node comprises a switch.
21. The apparatus of Claim 18, wherein the first conductive path connects to a first antenna and the second conductive path connects to second antenna and the first antenna is at least partially orthogonal to the second antenna.
- 20 22. The apparatus of Claim 18, wherein the first amplifier and the second amplifier amplify the signal prior to the signal arriving at the node.

23. A system for improving reception performance of a wireless communication device comprising:

means for receiving a first signal;

5 means for receiving a second signal, wherein the means for receiving a first signal and the means for receiving a second signal are at least partially orthogonal;

means for amplifying the first signal;

means for amplifying the second signal;

10 means for processing configured to analyze the first signal and the second signal and, responsive to the analyzing, generate a control signal; and

means for providing, responsive to the control signal, either of the first signal or the second signal to the means for processing.

24. The system of Claim 23, wherein the means for processing further comprises means
15 for comparing an error rate associated with the first signal or the second signal to a threshold value.

25. The system of Claim 24, wherein error rates above the threshold value cause the means for processing to generate a control signal.

20